Industrial Stormwater General Permit Implementation Manual for Log Yards

April 2004
Publication Number 04-10-031

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Prepared by:

Washington State Department of Ecology
Water Quality Program

April 2004
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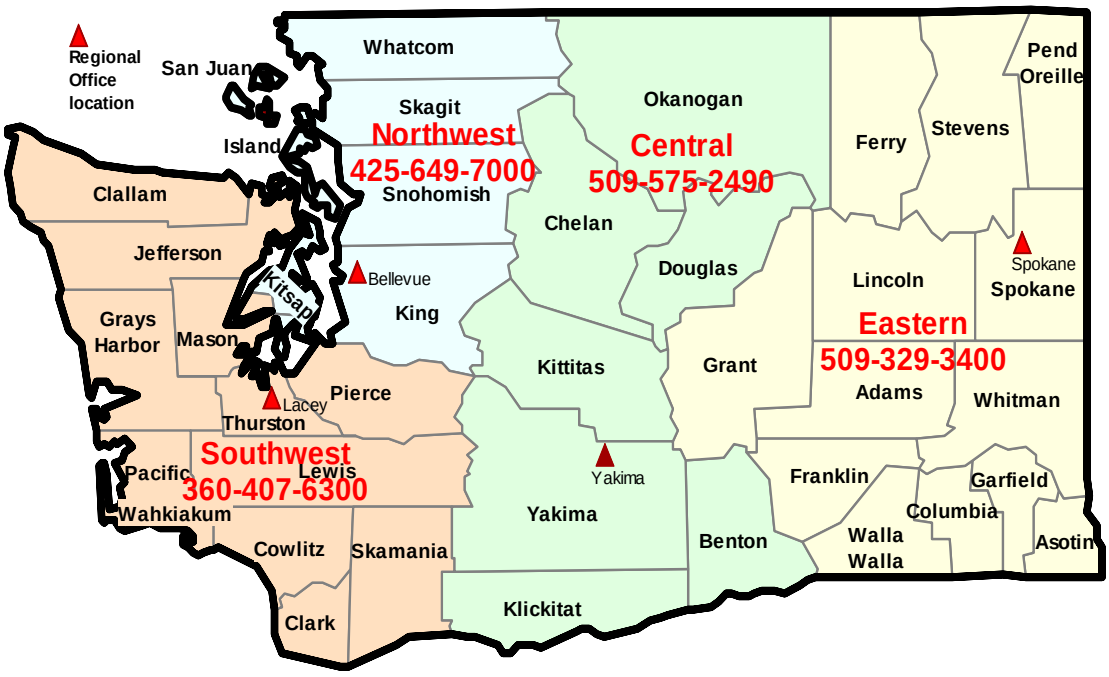

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Acknowledgements

This document was prepared with considerable assistance from a technical advisory committee. The document could not have been prepared without the hands-on experience of the industrial, local government, and Ecology representatives who served on this committee. Ecology wishes to thank the committee for its time and effort.

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1. Background

Purpose

The purpose of this manual is to provide operators and/or owners of log yards guidance for complying with Ecology's 2002 industrial stormwater general permit (Permit) requirements (Reference 1). It will be useful if combined with a thorough understanding of the Permit requirements. It has no independent regulatory authority and does not establish new regulatory requirements or standards. Recommended references are (see Appendix C – References): *How to Do Stormwater Sampling; Guidance Manual for Developing a Stormwater Pollution Prevention Plan (SWPPP) for Industrial Facilities;* and Volume IV of Ecology's Western WA Stormwater Manual (SWMM). These references can be downloaded at the Permit Home Page: http://www.ecy.wa.gov/programs/wq/stormwater/

Note: At Ecology's Industrial Stormwater Permit web page you will find the following useful links: Stormwater Sampling and Monitoring Plan, Stormwater Pollution Prevention Plan for Industrial Activities, and Stormwater Management Manual for Western Washington.

Required Industrial Stormwater General Permit Coverage based on Standard Industrial Classification (SIC)

The best management practices (BMP)s specified in this document apply to log yards at facilities for which permit coverage is required for stormwater discharges to surface water, and that are classified under SIC 2411 – Log Storage and Handling (unless exempt under 40 CFR Subpart 122.27), 2421 – Sawmills and Planning Mills, 2426 – Hardwood Dimension and Flooring Mills, 2429 – Special Product Sawmills, 243l – Millwork, 2435 – Hardwood Veneer and Plywood, 2436 – Softwood Veneer and Plywood, 2439 – Structural Wood Members, 2499 – Wood Products not elsewhere classified, 2611 – Pulp Mills, 2621 – Paper Mills, 2631 – Paperboard Mills, and 4491 – Marine Cargo Handling.

Pollutant Generating Sources

Stormwater pollutant generating areas at log yards can include log storage, rollout, sorting, scaling and cutting; log and liquid loading and unloading; truck, rail, ship, stacker, and loader access areas; debarker; bark bin and conveyor; bark, ash, sawdust, and wood debris piles and other solid wastes; log trucks, stackers, loaders, forklifts, and other equipment; maintenance shop and parking; cleaning of vehicles, parts, and equipment; storage and handling of

Figure IA - Bark Debris at Log Deck

hydraulic oils, lubricants, fuels, paints, liquid wastes, and other liquid materials; metal salvage areas; log preservation and surface protection with pesticides; and contaminated soil (Figures 1A, 1B).

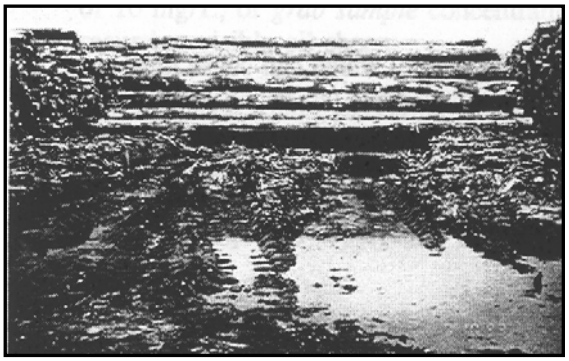

Figure IB - Ruts and Ponding

Stormwater pollutants can include particulates generated by sawdust, wood/bark debris, log yard soil erosion, and dirt from logging trucks; leachate from wood, bark, and ash wastes; lead from discarded batteries; wastewater and equipment/vehicle wash water spillage to storm drains; pesticides used for weed, insect and fungal control; and the leaks or spills of liquids such as fuels and hydraulic fluids. Pollutant constituents include oil and grease-petroleum based, 5-day Biochemical Oxygen Demand (BOD_5), turbidity, low/high pH, zinc, copper, and lead.

2. General Requirements of the Ecology 2002 Permit

To comply with Ecology's 2002 Permit requirements, operators or owners of log yards must prepare and implement a SWPPP in accordance with Condition S9 of the Permit, and retain it on-site. The SWPPP must include identification of existing best management practices (BMPs) and additional BMPs, including treatment BMPs that the permittee determines to be necessary. Ecology may require additional BMPs for discharges above benchmark values as reported in quarterly discharge monitoring reports (DMRs).

Stormwater discharges to receiving waters on Ecology's 303(d) list or to receiving waters with a completed water cleanup plan or Total Maximum Daily Load (TMDL), shall also be monitored for the pollutants of concern as described in the Permit (Special Condition S3.D.).

Other applicable requirements of the Permit include:

- Facilities for stormwater pollutant treatment and control shall be properly operated and maintained (S8).
- Discharge of process wastewater discharges or stormwater commingled with wastewater, to storm drains, surface waters, or to ground water (S3) is prohibited. Wastewater includes manufacturing/processing process water and vehicle and equipment wash water. A permittee is authorized to discharge conditionally approved non-stormwater discharges listed in S3.C of the modified Permit when issued.
- Bypassing of contaminated stormwater above quantities allowed for off-line bypassing is prohibited (S8).
- Credit for a mixing zone may be granted only by Ecology. Contact the Ecology regional office for appropriate instructions.

Checklist of Action Steps to Meet Applicable Permit Requirements

The following table contains a checklist that can be used by facility operators/owners to quickly identify action steps for meeting the Permit requirements. Although this checklist is reasonably complete, the permittee is also encouraged to review this entire guidance manual for an elaboration of each of the action steps. Other factors not listed in this table may also apply, so a thorough understanding of the Permit by the responsible facility official is necessary.

Permit Section	Requirements	Checklist of Action Steps Required	Relevant Reference
S2	Application for Coverage-New Facilities Existing Facilities Operating before 9/20/02 Existing Facilities-Modification of Coverage	Submit permit coverage application at least 38 days before and implement the SWPPP before startup of the industrial activity; Light industry facilities (category 11-App. I) previously exempt must apply for coverage or for no exposure. Must submit to Ecology identification of receiving water body and mixing zone declaration using Ecology declaration form. Modification needed for significant process change, to add or modify a mixing zone, to renew coverage before 3/24/07, to modify the sampling protocol. Permitted facilities must reapply within 180 days before 9/20/07	S2.B.3.c.i. S2.B.7 & S6 S2.B.4-6. S2.G.
S3	Discharge Limitations WQ Standards (303d listed waters)	This Permit is only for stormwater; wastewater discharges are prohibited unless authorized by another NPDES or state discharge permit. Eliminate illicit non-stormwater discharges within 30 days. Conditionally approved non-stormwater discharges in section S3.C of the future modified Permit are not illicit discharges. Permittee must comply with standards and TMDL determinations.	S3.B. S3.D.
S4	Sampling-general	Conduct quarterly grab or composite. Grabs within first hour of discharge at point of discharge Storm at least 0.1 in. rain/24 hrs. preceded by at least 24hrs. Without measurable rain. Acceptable to sample only discharges with highest pollutant concentrations. Conduct sampling/inspections only by persons named in SWPPP.	S4.A. & S4.B.
S4	Visual Inspections	During quarterly sampling check stormwater sampling locations for floatables (oils and industrial solids), visible sheen, color, turbidity, odor, and all discharges to ground. Assess SWPPP BMPs, pollutant sources, and site map for accuracy and adequacy. Inspect for illicit non-stormwater discharges; annually during dry season (June-September, and seven consecutive days of no rain). Eliminate illicit discharges within 30 days. Inspect for discharges not sampled; annually during a storm event.	S4.C.1.
S4	Sampling parameters	Analyze BOD_5, turbidity, pH, zinc, oil/grease-petroleum; if zinc exceeds benchmark value for two consecutive quarters also analyze copper and lead next quarter (& hardness if freshwater). Can suspend analysis of a parameter if 8 consecutive quarters of equal to or less than the benchmark value. For 303(d) and TMDL waters see condition S4.F for sampling criteria. Additional requirements for discharges to 303(d) or TMDL designated	S4.C.2. & S4.C.3. & Ref. 2 S4.F. & S4.G.

Permit Section	Requirements	Checklist of Action Steps Required	Relevant Reference
		waters.	
S4	Sampling-other	Use USEPA or Std. Methods (APHA) analytical procedures; and accredited labs.	S4.H. & S4.I. Ref. 6
S5	Reports/records	Report all sampling data to Ecology HQ quarterly on discharge monitoring reports (DMR) or electronically within 45 days after each quarter including; no discharges, when monitoring suspended-benchmark value(s) attained for 8 consecutive quarters, if and why unable to sample. Retain SWPPP, summaries of visual inspection reports, and all other records for minimum of 5 years. SWPPP and monitoring reports must be signed by company official.	S5.A. S5.B. G17
S5	Noncompliance Notification	Immediately act and correct the problem and notify Ecology regional office, and submit written report to Ecology within 30 days of the discharge of a significant amount of a pollutant. Quarterly visual inspection reports shall include a certification that the facility is in compliance or non-compliance with the SWPPP and the Permit identifying any incidents of non-compliance.	S5.E.
S7	WQ Standards	Facilities must comply with all WQ standards.	S7.
S8	O & M	Must properly operate and maintain all pollutant control systems.	S8. & (4)
S8	Bypass	Treatment bypass prohibited unless off-line or allowed in S8.A.	S8.A
S9	SWPPP	Update after inspections and retain on-site. New facilities must implement SWPPP before starting operation.	S9.B.2 & G17
S9	BMP Implementation Schedules Exceeded Benchmark Value(s)	Schedule to implement BMPs prepared within 30 days of determination or Ecology notice (implementation plan). Complete operational BMPs within 2 weeks and capital BMPs within 6 months, and eliminate illicit discharge(s) within 30 days. Ecology may require additional BMPs based on current stormwater Manual where benchmark value(s) are exceeded.	S9. A.4. & S9.A.5. Ref. 4 and 5 for BMPs
S9	SWPPP Contents	Include facility description, site map, materials handled, pollutant sources/activities; leaks and spills of toxics/hazardous materials, illicit discharge elimination. Update Monitoring Plan. Update BMPs (operational, structural, erosion sediment control (ESC), enhanced, treatment, innovative, and flow and volume control); use latest SWMM for needed BMP changes. Use blank forms in SWPPP Guidance.	S9.B.1. S9B.2./S9B3. & S9B.4./S9B.5. & Ref. 4 and 5 for BMPs

3. Choosing Best Management Practices

The Permit Requirement for Choosing BMPs

The Permit requires the implementation of best management practices to comply with state water quality standards, and state AKART requirements, and federal technology-based treatment requirements. These standards and technology-based requirements have been adopted as Washington State rules. Permittees must demonstrate that their best management practices meet the standards and requirements described in the Washington State rules using one of the following options:

Option 1 – The Demonstration Approach:

The technical basis for the selection of all stormwater BMPs must be documented within the Stormwater Pollution Prevention Plan. The SWPPP must document how stormwater BMPs were selected; the pollutant removal performance expected; the technical bases that support the performance claims for the BMPs being selected; and an assessment of how the selected BMPs will comply with state water quality standards, the state AKART requirements, and the federal technology-based treatment requirements under 40 CFR part 125.3. Ecology expects the demonstration documentation to be based on good science and sound engineering judgment. An example of an acceptable assessment protocol is the Technology Assessment Protocol-Ecology (TAPE) for emerging stormwater treatment technologies which can be downloaded at www.ecy.wa.gov/programs/wq/stormwater/newtech/.

Option 2 – The Presumptive Approach:

Permittees who choose to follow the stormwater management practices contained in this manual or other approved stormwater technical manuals, (including the proper selection, implementation, and maintenance of appropriate best management practices) are presumed to have satisfied the demonstration requirement and do not need to include within the SWPPP the technical bases which support the performance claims for the BMPs being used. Unless there is site-specific information to indicate otherwise, permittees who choose the presumptive approach are presumed to be in "compliance with standards" as set forth in Special Condition S7. of the Permit.

Other approved stormwater technical manuals include:

- *Stormwater Management Manual for Western Washington*, August 2001, for sites west of the crest of the Cascade Mountains;
- *Stormwater Management Manual for Eastern Washington*, (completion expected in the spring of 2004) for sites east of the crest of the Cascade Mountains.
- *Guidance Manual for Preparing/Updating a Stormwater Pollution Prevention Plan for Industrial Facilities*, spring 2004.

BMP Selection Process and Implementation Schedule

The first step in selecting BMPs is to identify pollutant sources and any existing BMPs. Then assess whether additional operational, structural source control, and erosion and sediment control BMPs are necessary, as specified in this guidance. If after applying additional BMPs, the stormwater still contains greater than a significant amount of a pollutant (benchmark value – see explanation below), it will trigger a level of concern by Ecology which may require implementing additional BMPs, including treatment BMPs (references 4 & 5 on BMPs).

A BMP implementation plan must be completed and entered into the SWPPP within 30 days of self-determination. The implementation plan shall include completion of non-capital BMPs within 2 weeks and capital BMPs within 6 months after its completion.

Benchmark Values and Significant Amounts

A significant amount of a pollutant is defined as a pollutant that is amenable to treatment, prevention, or that has the potential to cause or contribute to a violation of surface water quality, groundwater quality, or sediment management standards. The benchmark values specified in the Permit (table below) are used by Ecology as indicators of significant amounts of pollutants that need further reduction. Consider actions needed to reduce pollutants below benchmark values and record those actions in the SWPPP.

Parameter	Benchmark Value
Turbidity	25 NTU
pH	6-9 pH units
Biochemical Oxygen Demand (BOD_5)	30 mg/L
Total Zinc	117 µg/L
Petroleum Hydrocarbons-Oil/grease	15 mg/L
Total Copper*	63.6 µg/L**
Total Lead*	81.6 µg/L
Hardness*	NA

* Sampling required if total zinc exceeds the benchmark value for two consecutive quarters. Refer to Permit S4.C3. for explanation.

** Subject to final resolution of litigation and issuance of the modified Permit.

4. Operational BMPs for All Areas of Log Yard Activity

Implementing the following operational BMPs will meet the permit requirements:

Formation of a Pollution Prevention Team

The Pollution Prevention Team is responsible for developing, implementing, maintaining, and modifying the SWPPP. Regular meetings should be held to review the operation and maintenance of the BMPs, the results of the inspections, development of an emergency contact list, recordkeeping, and training its members on SWPPP procedures.

Good Housekeeping

These are good housekeeping practices for cleanup or preventing the generation of pollutants.

- Manage the handling of bark and other wood-waste materials consistent with good industry practices and to prevent the production of stormwater pollutants in significant amounts.
- Establish procedures to clean up the bark, wood waste, and any other pollutant debris accumulations which have the potential to be carried away by stormwater runoff, deposited into surface water, or cause leachate formation. Cleanup procedures can include use of mobile sweepers, scrapers, brow logs, and/or scoops.
- Conduct maintenance and cleanup at the following frequencies:
  - Daily, or as needed to reduce stormwater pollutants below a significant amount, and where accessible, at log sorting, scaling, and rollout areas; rail, truck, ship, log loader and stacker access and high traffic areas; bark, log, and waste loading and unloading areas; trailer hoists; outside wood material bins and conveyors; and debarkers.
  - After every log deck turnover (i.e., before a load of logs is added to the log deck) at log decks and interbays.
  - Annually, before the winter rainy season at the entire log yard.
  - Regularly, as needed, remove accumulated oil from oil/water separators, boomed areas, and other oil removal or oil containment systems to ensure their intended operating efficiency.
  - At least once per year, or more frequently as needed, remove and properly dispose of debris and sludge from all conveyance, collection, and treatment BMP systems such as catch basins, settling/detention basins, and oil/water separators, based on the inspections.
- Clean up all catch basins when the depth of the sediment accumulation is greater than 1/3 the distance from the bottom to the lowest pipe into or out of the catch basin.

- Do not discharge unpermitted liquid wastes, process wastewater, or sewage to the ground, storm drains, or surface water. Eliminate all illicit non-stormwater discharges within 30 days, or obtain an NPDES Permit for such discharge.

Note: The SWPPP must include a schedule/frequency for completing each housekeeping BMP.

Preventive Maintenance

These are practices at a facility that minimize or eliminate the contamination of stormwater.

- Inspect and properly maintain stormwater drainage and treatment systems, and log yard equipment and systems that could fail and result in contamination of stormwater.
- At rock and soil yard areas:
  - Repair and/or stabilize soft spots, ponding, wheel ruts, and erodible soil areas where the potential for stormwater contamination exists with rock replacement/addition or paving as needed to control pollutants. High activity areas should be given high priority.
  - Repair entire rock and soil yard, as needed, to ensure proper containment, collection and conveyance of stormwater, and the stabilization of erodible soil.
- At paved yard areas:
  - Repair major cracks or any other damage as needed to prevent impairment of ground water. Construct impervious areas subject to frequent spills/leaks of fuels or organic solvents with Portland cement concrete or equivalent. Asphalt can be used if it is treated or formulated to be resistant to the fluids which can be spilled or leaked onto the paved area. Normal asphalt is incompatible with fuels and most solvents and oils.
- For log loaders and stackers, trucks, fork lifts, chain saws, and other yard equipment:
  - Follow manufacturer's maintenance instructions, including a frequency based maintenance checklist for all fluid containing components (particularly the hydraulic oil system hoses, pump, valves, o-rings, gaskets, fittings, and the engine fluids) to prevent leaks and spills.
  - Provide a shift maintenance checklist to the operators of the log stackers/loaders that includes checking for fluid leaks and levels and instrument readings for all hydraulic and power train fluids before and after starting the engine, and testing the high pressure hydraulic oil system before operating in the yard.
  - Use high quality hydraulic oil hoses and fittings with high working and bursting pressure capability such as four-ply spiral steel hoses, or equivalent, in the log loaders and stackers and replace as needed to prevent hose breaks.

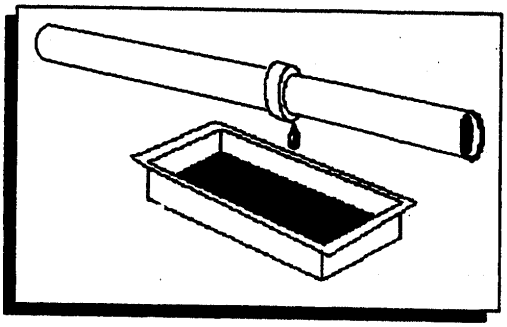

Figure 2. Sketch of drip pan

- Replace log stacker/loader hydraulic oils over an impervious contained area. Use drip pans to collect leaks from mobile equipment and vehicles when they are not in operation. (Figure 2)

- Park log stackers and loaders, trucks, and fork lifts in designated areas where proper control of oil leaks/ spills is maintained.

- Consider a hydraulic oil indicator or alarm system for the log stackers and loaders which can sense a hydraulic oil pressure loss.

- For the storage and handling of waste containers:

  - For storing liquid wastes use containers such as steel and plastic drums that are rigid and durable, corrosion resistant, nonabsorbent, watertight, and equipped with a close fitting cover.

  - For storing solid wastes contaminated with liquids or other pollutant materials that can contaminate stormwater, use dumpsters, garbage cans, and comparable containers that are durable, corrosion resistant, nonabsorbent, nonleaking, and equipped with either a solid or screen cover. Store screen-covered containers under a lean-to or equivalent covered structure.

- For the control of weeds and other vegetation:

  - Before considering herbicides, consider alternative approaches such as covering, harvesting, substituting vegetative growth, and manual weed control. Use an herbicide as a last resort and select the herbicide that is the least toxic to humans and aquatic life. Apply herbicides in accordance with label directions or use herbicide products applied by a licensed applicator.

  - Do not apply herbicides within 100 feet of open waters including wetlands, ponds, streams, sloughs and within close proximity of any drainage ditch or channel that leads to open water.

  - If required by the local government, post public warnings indicating the area to be sprayed.

  - Prior to spraying, visually mark all sensitive areas such as wells, creeks, and wetlands with appropriate signs/flags, so that spraying is not conducted within 100 feet of the sensitive area.

- For dust control sweep and/or apply water or materials which will not cause the pollution of ground water or surface water.

- Stencil warning signs at stormwater catch basins and drains, e.g., “Dump no waste,” where practicable.

- Post pollution prevention instructions for yard employees at log sort and access bay areas, vehicle/equipment maintenance areas, and any other potentially high pollution areas. (see example sign in Appendix.)

Spill Prevention and Cleanup

- Prevention should be foremost, especially in vehicle/equipment fueling and maintenance areas.
- Stop, contain, and clean up all spills immediately upon discovery.
- Collect oil-contaminated absorbent as a solid and place it in appropriate disposal containers. Do not flush absorbent material to a storm drain.
- Promptly report any spills or releases of materials which may contaminate stormwater to the appropriate person or persons identified in the SWPPP. Notify Ecology and the local Sewer Authority immediately if the spill may reach sanitary or storm sewers, ground, or surface water. (Chapter 173-303-145 WAC and Ch. 90.48 RCW).
- In addition to Washington spill control requirements also comply with the USEPA Oil Spill Prevention Control and Countermeasure Plan (Section 311 of Clean Water Act) requirements which apply to above-ground storage facilities of 1,320 gallons or more.
- Identify areas where potential spills can contaminate stormwater.
- Place a small oil spill containment and cleanup kit on each hydraulic log stacker and log loader for immediate spill response and temporary control by the operator. These kits should be placed in chemically resistant containers or plastic bags, properly labeled, and readily accessible to the operator.
- Keep a larger backup oil spill kit at a central location for additional spill control. This kit should contain plastic (polyethylene or polypropylene) or plastic sheet-lined steel salvage drums or containers or plastic salvage bags; emergency response guidebook; safety gloves, clothes, and/or equipment; shovels or other soil removal equipment; absorbent pads and oil containment booms. All should be stored in an impervious container. Deploy oil spill kit(s) in a manner that allows rapid access and use by employees.

Employee Training

At least annually train employees that work in pollutant source, BMP, and stormwater conveyance areas, to understand the spill response procedures, good housekeeping and preventive maintenance BMPs, and environmentally acceptable material handling practices (bark, wood waste, log stacker/loader hydraulic oils, etc.) described in the SWPPP. Keep a log of training dates.

Visual Inspections

Identify the plant personnel who will conduct the inspections and ensure that inspection reports are accurate, signed by an officer of the company or authorized representative (see permit condition G17), and kept with the SWPPP. Conduct inspections at the following frequencies:

- Conduct visual inspections concurrently with quarterly stormwater sampling, and annually at sampling points not sampled, and at least once during July, August, and September, including discharges to ground. Record visual observations of floatables, visible sheen, discoloration, turbidity, odor, etc., in the stormwater discharges and any non-stormwater discharges (wastewater and cooling water, including leachate). Assess adequacy of the BMPs

required by the Permit and accuracy of pollutant source lists and site map. Notify your Ecology regional office if a non-stormwater discharge is observed and eliminate illicit discharges within 30 days, unless it is in compliance with another NPDES discharge permit.

- While the yard is in operation inspect daily, or as needed: log sort, scaling, and rollout yards; log deck and access bays; log stackers, loaders, and trucks; rail, and ship access areas; timber material bins; debarkers; and log treatment chemical handling areas, to determine the need for cleanup of debris and leaks and spills of pollutant liquids.
- Inspect weekly or as needed: log sort, scaling, and rollout yards; log deck and access bays; log loader, stacker, and truck, rail, and ship access areas; and check for rock and soil area soft spots, soil erosion, and proper grading and drainage.

Reporting and Recordkeeping

Include with the SWPPP the following records and reports as required by the Permit:

- The Monitoring Plan for stormwater discharges at your facility
- Quarterly and annual sampling data recorded on discharge monitoring reports (DMRs), and summaries of visual inspection reports with tracking procedures on action steps taken.
    - Report sampling results to Ecology Headquarters quarterly, either as hard copies or electronically on DMRs. Monitoring reports must include absence of discharges at designated sampling points and when sampling is not conducted due to attainment of benchmark values. Also include any stormwater pollutant monitoring data that is not required by the Permit. Quarterly DMRs reports must be submitted within 45 days following the end of a reporting period and no later than May 15, August 14, November 14, and February 14. For each sample, record the following: the date, exact place, method, and time of sampling; the name of the individual(s) conducting the sampling and analysis; the analytical methods used; and analytical results.
    - Laboratory analytical reports on organics and metals must include sampling date, sample location, date of analysis, parameter name, Chemical Abstract Service number, analytical method/number, method detection limit, lab Practical Quantitation Limit, reporting units, and concentration detected, and must be kept onsite.
    - Retain all DMRs, inspection reports, monitoring instrument calibration and maintenance, all permit application records of data, reports required by the Permit, and all compliance records for a minimum of 5 years. These must be signed by company official (condition G17) and made available, on request, to Ecology and to the owner and operator of the municipal storm sewer system through which the stormwater is discharged.
    - Use the blank forms provided in the SWPPP Guidance Manual for recording monitoring results. http://www.ecy.wa.gov/programs/wq/stormwater/
- Quarterly, a certification of compliance or non-compliance with the SWPPP and the Permit identifying incidents of non-compliance (S9.B.3.a.vi of the modified Permit), which meets signatory requirements. Include a summary of actions which will be taken to meet the requirements of the SWPPP and Permit.

- Immediate notification of Ecology regional office of any noncompliance, with written confirmation within 30 days. (Section S5.E.)

5. Source-Specific BMPs

Implementing the following BMPs for specific pollutant sources will meet the Permit requirements:

At High Activity Areas:

To prevent or reduce the erosion of soil and the generation of wood waste, bark debris, and leachate:

- Pave the high activity area where practicable and reasonable to facilitate cleaning. Do not pave over soil known to be contaminated with pollutants unless it has been determined that ground water has not been, and will not be, contaminated by the soil. Call Ecology for assistance,
- Slope all high activity paved and rock areas to minimize the erosion of soil and wood/bark materials, and minimize the formation of leachate. Minimize or eliminate ponding under piles, and contact between bark or wood materials and stormwater wherever practicable, and
- Optimize stormwater segregation in high activity areas as follows:
  - Provide slopes sufficient to prevent run-on of uncontaminated stormwater into pollutant source areas.
  - Convey contaminated stormwater to appropriate pollution control system(s).
  - Apply curbing or berming where needed for segregation and use curb/berm materials that will not leach or erode.

For Wood Waste Debris and Bark Piles (Figure 3)

Implement BMPs for solid wastes that are stored in piles and not intended for recycling, pursuant to Chapter 173-304 WAC, or Chapter 173-350 WAC, Solid Waste Handling Standards, updated on 2/4/03, as it applies. There are significant differences between these two solid waste rules which should be reviewed by affected facilities for applicability. You should also contact the local jurisdictional health department on applicability and implementation issues.

Figure 3 Bark Pile on Paved Surface

WAC 173-350 does not apply to wood waste used for ornamental, animal bedding, mulch, and plant bedding, or road building purposes. Wood wastes designated for recycle under some conditions may also be exempt from the solid waste rule requirements. Recyclable wood wastes

include beauty bark, compost destined for sale, hog fuel piles to be used as fuel, or raw materials stored temporarily in piles being actively used or which are recycled within the above time-periods and conditions.

For the Control of Stormwater Leachates and Soil Erosion from All Material Storage Pile Areas - you may apply the following BMPs to comply with the permit

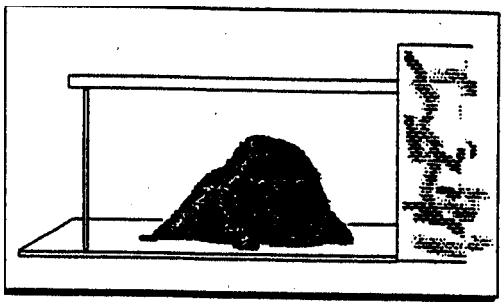

Figure 4A Covered Storage Area

- If feasible, cover the piles (using roofs, buildings, canopies, silos, van trailers, sheds, tarps, etc.) to prevent contact with rainfall. (Figs. 4A and 4B)
- Pave the area, if practicable, to increase sweeping and cleaning effectiveness.
- Provide slopes, berms and/or curbs sufficient to prevent runon of uncontaminated stormwater and to convey contaminated stormwater to appropriate pollution control system(s). Slope the area to prevent ponding under the piles and to convey stormwater leachate to treatment if a benchmark value is exceeded. Limit sloping to prevent erosion of soil, bark, and woodwaste. If a stormwater discharge contains greater than a benchmark value of BOD_5, turbidity, oil and grease, pH, zinc, copper, or lead, Ecology may order additional BMPs, including treatment BMPs (see Section 6), to reduce pollutants below the benchmark value.

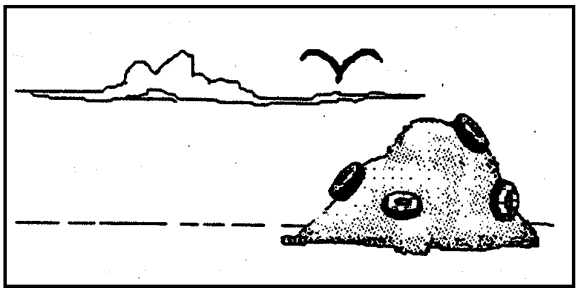

Figure 4B Pile Covered with Plastic Sheer

- Avoid contamination of the piles by oils, solvents, chemically treated wood, etc.
- Limit storage time, surface areas, and volumes of bark and woodwaste piles exposed to precipitation to minimize the generation of leachates.

At Storage and Handling Areas of Other Solid and Hazardous Wastes

Dispose of all other solid wastes in accordance with Chapter 173-304 WAC Minimum Functional Standards for Solid Waste Handling, or Chapter 173-350 as it applies, and dispose of dangerous wastes in accordance with Chapter 173-303 WAC, Dangerous Waste Regulations.

Note: Ash and slag from hog fuel burners must be kept from contact with stormwater or leachates conveyed to proper treatment.

At Vehicle, Parts Washing or Cleaning Areas

Implement one of the following BMP options:

Preferred Option – Conduct the washing/cleaning in an enclosed building, or under a roof or canopy, with an impervious floor, such as concrete with no floor drainage to the outside other than connections to sanitary sewers or treatment facilities authorized by an appropriate Ecology permit.

Minimum Option – If above option cannot be implemented, then an uncovered Portland cement concrete pad that is impervious and contained, or equivalent, can be installed. (Figure 5) Implement the following additional BMPs for the above options:

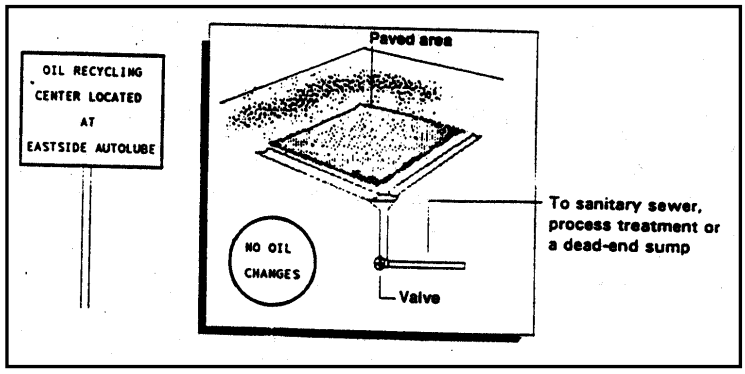

Figure 5. Sketch of a Wash Pad

- Design the pad to contain spills using one of the following methods: inward sloping berms or dikes around the perimeter, or a dead-end sump and/or a perimeter drain. The perimeter drain (trench, catchment drain) and/or the dead-end sump can be used for collecting stormwater provided that the discharge outlet from the spill collecting device has a locked valve which normally is in a closed position to prevent the release of pollutant fluids.
- Convey contaminated stormwater (commingled with wash water) collected on the pad to a sanitary sewer, if allowed by the local sewer authority after acceptable pretreatment; to a total recycle system; or to an oil/water separator if a detergent is not used an activated carbon filter, or other appropriate treatment if the stormwater discharge contains greater than a benchmark value of a pollutant. After appropriate treatment (see Section 6, Treatment BMPs) the stormwater can be discharged to a storm drain or to surface water.
- Vehicle wash or rinse water may be discharged to: a sanitary sewer (if allowed by the sewer authority); appropriate wastewater treatment; a land application site; the ground; or it may be totally recycled (zero discharge). The discharge to ground option requires a high level of treatment and must comply with Chapter 173-200 WAC. Washwater must not be discharged to a storm drain or to surface water.
- Avoid the use of detergents for vehicle cleaning if the stormwater is conveyed to a storm drain unless the stormwater is conveyed to proper treatment such as activated carbon.

BMPs for Liquid/Fuel Handling Areas

At stationary vehicle or equipment fueling areas implement one of the following BMP options:

Preferred Option 1-Fuel Island/Pad under Cover (Figure 6)

- Conduct the fueling on an impervious contained pad, or equivalent, under a roof or canopy.
- The roof or canopy shall, at a minimum, cover the spill containment pad and preferably extend several additional feet to prevent windblown rain from entering.

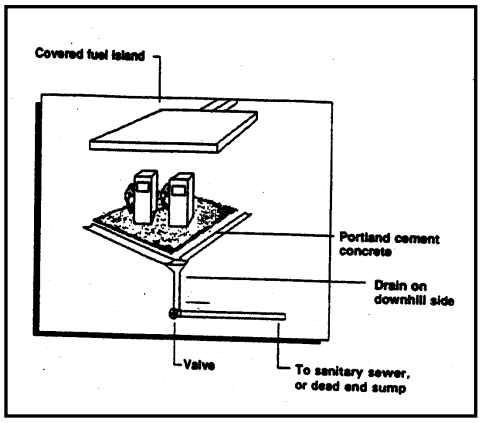

Figure 6. Details of Fuel Island

Option 2 – Uncovered Fueling Pad. Where it is not feasible to install a roof or canopy for the large equipment (log stackers/loaders) an uncovered impervious contained pad is acceptable.

The following are additional BMPs for both options:

- Use Portland cement concrete, or equivalent, for the impervious contained pad. Do not use asphalt that is not chemically resistant to the fuels handled at the facility.
- The impervious containment pad, dead-end sump, discharge outlet valve, and contaminated stormwater discharge shall be designed as specified in the previous vehicle and parts washing section on the potential need for treatment.
- Transfer fuel from tank trucks to fuel tanks in impervious contained areas.
- Use drip pans in the contained area where leaks/spills of fuel can occur (hose reels, filler nozzles, etc.) and where making and breaking hose connections.
- Use service station type filler hose or hose with check valve to prevent hose drainage after filling.
- Promptly clean up all spills and leaks of fuel in the contained area, including the sump.
- Do not "top-off" fuel tanks.

At Mobile Fueling Areas – Implement the following BMPs where fueling of mobile or other equipment is conducted by fueling trucks outside of the dedicated fuel island:

- Use a drip pan under the transfer hose.
- Place small oil spill containment and cleanup kits on the fuel receiving equipment.
- Use service station type filler hose or hose with a check valve to prevent hose drainage after filling.
- Ensure that the fueling vehicle (tank truck) is equipped with a manual shutoff valve at the tank outlet (transfer hose inlet).
- Do not allow topping-off of the fuel in the receiving equipment.

Note: Stationary and mobile fueling facilities shall be built and operated in compliance with the Uniform Fire Code and the National Electric Code.

At Liquid Loading and Unloading Areas – Conduct loading and unloading of liquid materials in an enclosed building, on an

Impervious pad under a roof, at a dock with a door skirt (see Figure 7A), under an overhang (Figure 7B).

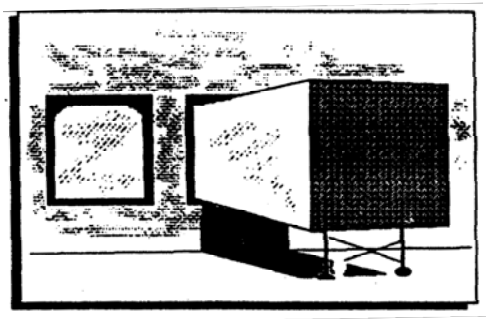

Figure 7A. Dock with Door Skirt

Implement the following additional BMPs at loading/unloading areas:

- Berm around the perimeter and/or slope the impervious concrete floor or pad to a dead-end sump, or other proper containment, to collect spills/leaks and to prevent stormwater run-on.
- Use drip pans at locations where spillage may occur such as hose reels and filler nozzles and where making and breaking connections.

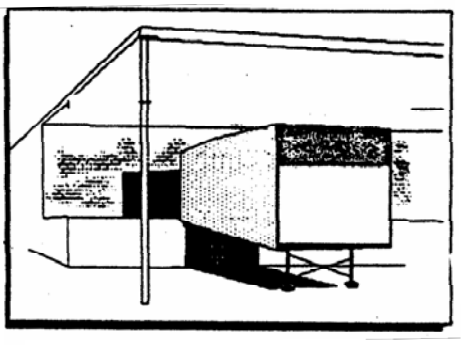

Figure 7B. Dock with Overhang

- Do not connect floor drains directly to a storm sewer or to surface water.

For rail transfer, a drip pan as illustrated in Figure 8 shall be installed within the rails to collect spillage from the tank cars.

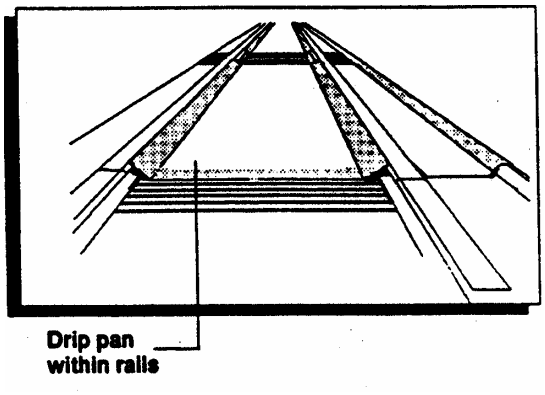

Figure 8. Sketch of Rail Drip Pan

Liquid Storage in Above-Ground Tanks, Including Fuels – Implement one of these two BMP options:

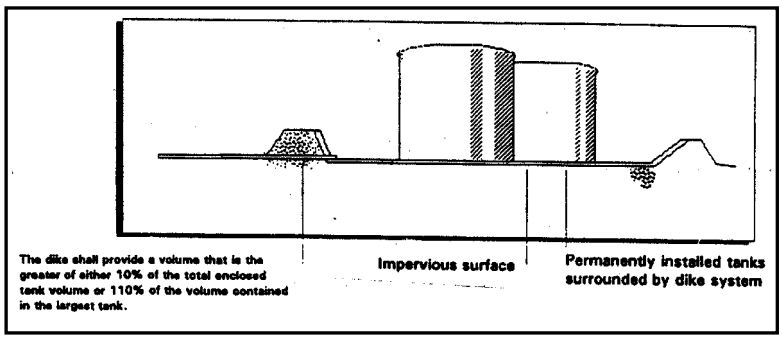

Figure 9

Option 1 – Use secondary containment.

- At the perimeter of the tank containment, install dikes or other physical barriers of sufficient height to contain the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank. (Fig.9)
- Include overflow protection to prevent frequent spills during loading.
- Keep liquid transfer nozzles/hoses within the secondary containment area.

Option 2-Use double-walled tanks that do not need containment (should be UL approved). Use drip pans under transfer hose and nozzle, overflow protection, and anti-siphoning.

Liquid Storage in Portable Containers (typically ≤ 55 gals) – Implement one of these BMP options:

Option 1 – Store the drums or containers inside a building, unless impractical due to site constraints or Uniform Fire Code Requirements.

Option 2 – Store the drums or containers in a secondary containment area with a roof or appropriate cover. A lean-to type structure is acceptable. (Figure 10)

Note: A temporary cover such as a tarp can be used as long as it sufficiently prevents contact with stormwater.

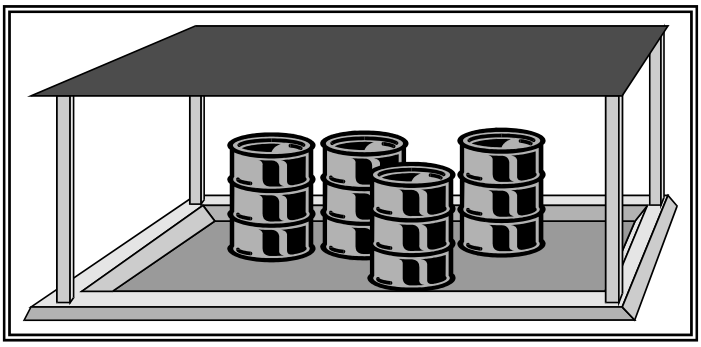

Figure 10. Sketches of Drums in Covered Secondary Containment

In addition to the above options, implement the following BMPs:

- Surround the containers by dikes or other physical barriers which will contain the greatest of either 10 percent of the total enclosed container volume or 110 percent of the volume of the largest container.

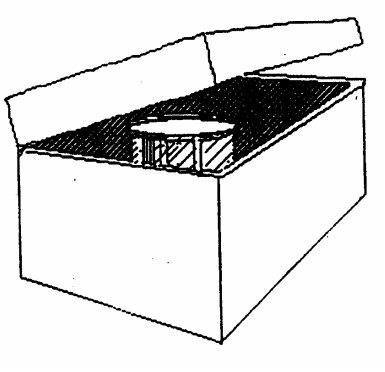

Figure 11. Sketch of Portable Secondary Containment

- Place containers mounted for direct removal of a liquid for use by employees in a containment area as described above.
- Empty, used drums should be stored under cover, preferably in secondary containment until recycled or disposed of properly.
- Clearly label each container as to its contents.

Option 3-Store drums in portable secondary containers with covers to keep out rain such as large rigid plastic trays with the containment volumes required in this section. (Fig. 11)

Liquids Stored in Above-Ground Tanks or Portable Containers

Also implement these BMPs**:**

- For contaminated stormwater in the containment area, particularly where tanks/containers are not covered, connect the sump outlet to a sanitary sewer, if approved by the local Sewer Authority, or to appropriate treatment such as an oil/water separator, catch basin filter, or other appropriate system (3, 4). Equip the sump outlet with a normally closed manual or automatic valve to prevent the release of spilled or leaked liquids, especially flammables (compliance with fire codes), and dangerous liquids. This valve may be opened only for the conveyance of contaminated stormwater to approved treatment or disposal, or to convey uncontaminated stormwater to a storm drain. Evidence of contamination can include the presence of visible sheen, color, or turbidity in the runoff, or existing or historical operational problems at the facility. Use pH paper or meter for areas subject to acid or alkaline contamination.
- Ensure that liquid transfer to tanks or drums is conducted on impervious containment and/or with drip or spill pans under the transfer hoses.
- Impervious containment areas, perimeter drains, dead-end sumps, outlet valve, and stormwater discharge shall be designed as specified in the previous vehicle and parts washing section.
- Handle and store dangerous wastes, including glycol-based anti-freeze solutions, waste lead acid batteries, and battery acids, in accordance with Ecology's Dangerous Waste Regulations.
- Store and handle reactive, ignitable, or flammable liquids in compliance with applicable Uniform Fire Code, local fire codes, local zoning codes, and the National Electric Code.

Maintenance Shops

Implement either of these two BMP options**:**

- Cover and/or provide impervious containment such as dikes or berms around the perimeter of the outside parking and staging areas for log yard equipment and vehicles before, during, and after servicing by the maintenance shop.
- If the outside staging area is uncovered, convey the stormwater runoff, including roof drains, to appropriate treatment, if it can contain or contains greater than a benchmark value of a stormwater pollutant. Place drip pans under any liquid leak from any vehicle or equipment while it is temporarily parked outside.

For Erosion and Sediment Control

Implement the following BMPs as appropriate to prevent stormwater pollution in a significant amount:

- Stabilize all soil areas which are eroding, or may potentially erode, with appropriate erosion and sediment control BMPs.

- Install and maintain vegetated or paved drainage or otherwise stabilized swales or ditches, and/or sedimentation basin, as needed.

For Soil Contaminated with Oil/grease and/or Toxics Such as Pesticides and Metals

If soil contaminated with toxics is discovered and it causes or can cause the pollution of ground water or surface water, call Ecology's Toxics Cleanup Program at the regional office in your area for assistance. Implement the following BMP options, where applicable**,** if there is no actual or potential for the pollution of surface water or ground water by the contaminated soil.

Option 1 (Preferred) – Soil Remediation. Collect the contaminated soil in appropriate containers (preventive maintenance, section 4) and transfer it to a covered impervious containment area onsite for temporary storage or remediation, if feasible, or arrange to transport it to a permitted waste treatment or disposal facility.

Option 2 – Prevent Contact with Stormwater. Cover the contaminated soil with a durable plastic cover, or equivalent, to prevent contact with stormwater and divert stormwater around the covered contaminated soil to prevent the contamination of stormwater.

Option 3 – Collect and Treat the Stormwater. Collect and treat the stormwater runoff from the contaminated soil site (see Section 6) if the runoff contains greater than a benchmark value of any pollutant.

Additional BMP for all above options – Assess the potential for groundwater contamination. Contact your Ecology regional office for assistance if needed.

Basic Summary Approach for Stormwater Collection and Conveyance

Implement the following BMPs at the high activity areas, where applicable:

- Wherever reasonably achievable, keep uncontaminated stormwater away from pollutant sources such as the high activity log and wood debris handling and storage areas, vehicle and equipment maintenance, bark and wood residue storage, and liquid storage areas.
- Collect, segregate, and convey to appropriate treatment BMPs, as needed, stormwater which contains greater than a benchmark value of a pollutant.
- Provide proper sloping to reduce or prevent ponding, erosion, and leachate formation.
- Minimize the use of catch basins in the interior of the high activity areas, as they tend to rapidly fill with wood waste/sediment. Rather, the area should be sloped to drain stormwater to the perimeter where it can be collected and treated in larger solids handling systems.

Surface Protection of Logs with Sapstain Control and/or Fumigant Chemicals

For certain shipments and storage conditions, raw logs are treated with pesticides to control sapstain, mold, mildew, bacteria, and insects. Log treatment chemicals are usually applied by dipping or spraying. Losses of such compounds to the environment during their storage, handling, and use must be prevented to the maximum extent achievable.

Log treating operations or treated log storage areas shall not result in the release of any residual log treating chemicals which would cause the violation of ground water or surface water quality or sediment management standards. The goal is no discharge of any pesticide. If, after implementing the BMPs specified below, stormwater is contaminated with any residual of a pesticide, further controls would be necessary. If this occurs, contact the Water Quality Program at your Ecology regional office for advice.

Implement the following BMPs**:**

- Use log treating chemicals only as a last resort and apply in accordance with label directions.
- Apply log treating chemicals on impervious containment such as Portland cement concrete or equivalent, in a building, or under a roof, cover, or equivalent structure.
- Store freshly treated logs on impervious containment in a building or under a roof, or equivalent cover, so that there is no release of log treating chemicals which would contaminate stormwater during outside storage or handling.
- Do not connect floor drains from the spray or dip facility to storm drains or to surface water.
- Dedicate equipment for only log treating to avoid spreading the pesticides to other areas on the site.
- Store and handle all pesticides and all equipment, containers, solid waste, and/or liquid wastes that is/are contaminated with log treating chemicals in accordance with pesticide label instructions and Ecology's dangerous waste requirements (Chapter 173-303 WAC).
- If soil is contaminated with log treating chemicals from past or current practices, call the regional office of Ecology's Toxics Cleanup Program for technical assistance.
- Do not vent volatile or mist-laden exhaust containing log treating chemicals to the outside, unless necessary for occupational health and safety reasons.
- Clean up all spills and leaks immediately with dry absorbents and dispose in accordance with label instructions and Washington dangerous waste requirements.

BMP Consideration for Paving High Activity Rock/Soil Areas

A log yard facility may conduct an economic evaluation of the processing and environmental benefits of paving the existing high activity rock/soil areas. Environmental benefits can include more efficient cleaning of debris and oil drips and less erosion of particulates from rock/soil work areas. Process improvements can include cleaner bark and hog fuel, less saw and log stacker wear, more efficient log stacker/loader operation. Water sprays to maintain the quality of logs can also be more efficiently collected for reuse.

6. Treatment BMPs

Treatment BMPs may be required by Ecology when operational and source control BMPs are not adequate to reduce pollutants below a significant amount (a benchmark value) and to maintain compliance with water quality standards. Treatment BMPs that may be considered for specific pollutants are identified below:

- For gross solids and turbidity (benchmark value of 25 NTU) install a settling basin, filtration system, or equivalent treatment. Consider emerging technologies where applicable. See web http://www.ecy.wa.gov/programs/wq/stormwater/
- For oil and grease (benchmark value, 15 mg/L), install an oil/water separator, activated carbon filter, applicable emerging technologies, or other appropriate oil removal system.
- If an ongoing or frequently recurring visible sheen is observed in the stormwater discharge, implement additional BMPs to prevent the sheen. If the discharge contains below a benchmark value of oil and grease and still has an ongoing or recurring visible sheen submit a report to the Ecology regional office summarizing the effort to control the sheen. The report should include discharge data, inspection results, and BMPs implemented to attempt to control the sheen. After receiving such a report, an Ecology inspector may visit the site to decide whether further controls are necessary.
- If the pH of a stormwater discharge is below 6.0 or above 9.0, install a neutralization system or convey to an industrial wastewater treatment system.
- For total zinc (benchmark value, 117 ug/L), use enhanced treatment described in volume V of Ecology's stormwater manual (reference 4), or an emerging technology, where applicable.
- For BOD_5 consider discharge to sanitary sewer, emerging technologies, or other appropriate treatment facility.
- In those areas of eastern and central Washington with low rainfalls, a no surface discharge option using infiltration and evapotranspiration can also be considered as long as ground water quality standards are not violated.

7. Engineering Practice for Treatment BMPs

Design, construct, and operate treatment BMPs in accordance with the criteria in Ecology's applicable stormwater manual (references 4 and 5) or in accordance with professional engineering practice that is based on equivalent standards.

8. Sampling Requirements

The summary below should help the permittee understand the sampling requirements. For details on sampling techniques download Ecology's "How to Do Stormwater Sampling" at its web site (reference 2) or obtain a printed copy from Ecology.

Summary of the Permit Sampling Requirements

All permitted facilities must conduct quarterly sampling (and visual inspections) of authorized stormwater discharges to surface water (during representative industrial facility operations). The

sampling results must be reported to Ecology quarterly even if no stormwater discharge was observed during the quarter or if quarterly sampling or analysis of a parameter is suspended following eight consecutive quarters of attainment of a benchmark value(s).

The sampling protocol includes the following:

- Obtain a grab sample within the first hour after the discharge begins or a proportional sample within the first 30 minutes for a minimum of 2 hours after the onset of the discharge.
- Sampling points at greatest exposure to pollutants must be selected. At multiple discharge sites only the discharge of each pollutant type at highest concentrations must be sampled. Include likely volumes or flows of all discharges. The sampling point must be as close to point of discharge as is practicable.
- The parameters required to be analyzed are turbidity, pH, total zinc, oil and grease-petroleum based, and BOD_5. If the zinc is above the benchmark value for two consecutive quarters then total copper, total lead, (and hardness for discharges to freshwater) analyses are also required beginning with the next sampling quarter.
- To qualify for sampling, a storm event must be at least 0.1 inch rainfall/24 hours and must be preceded by at least 24 hours of no measurable precipitation. A rain gauge (available from Ecology) and other practicable measuring techniques can be used.
- Include explanations of any sampling variances, anomalies, equivalent approaches, etc., in the SWPPP.
- Check Permit Section S4.B. for exceptions to sampling requirements.
- For 303(d) listed impaired waters, the following additional monitoring must be conducted:
  - Include quarterly monitoring of parameters on the 303(d) list except for temperature. Fecal coliform is required only if it is from an industrial activity at the facility and for allocated pollutants based on a TMDL determination.
  - If the receiving water is listed for sediment, analyze total suspended solids (TSS) in the discharge and use secondary treatment discharge standards of: 30 mg/L monthly average and 45 mg/L instantaneous maximum and pH outside the range of 6.5-8.5 in freshwater and outside the range of 7.0-8.5 in marine waters. Refer to S4.F. of the permit.

Note: For visual monitoring requirements see checklist on page 3.

9. General Guidance on Sampling

Sample Analysis, Handling and Preservation

Samples should be analyzed, handled, and preserved in accordance with Code of Federal Regulations Title 40, Part 136. Typically, acceptable analytical methods include USEPA methods and Standard Methods for the Examination of Water and Wastewater (APHA) (references 6 & 7). Accredited laboratories (Chapter 173-50 WAC) must be used for analyzing all pollutants except flow, temperature, settleable solids, conductivity, pH, and turbidity (http://www.ecy.wa.gov/programs/eap/labs/scrshmain.htm). If an accredited lab is used, then conductivity, pH, and turbidity must also be analyzed by the accredited lab.

Special Considerations for Oil and Grease Sampling

Only grab samples are acceptable for oil and grease analysis. The sample should not be transferred from one container to another; rather, a wide-mouth solvent prerinsed one-liter glass bottle with a Teflon insert in the lid should be used to collect the sample. The sample must be preserved by adding sulfuric or hydrochloric acid to a pH of less than 2.0 and then stored no longer than 28 days at four degrees C, until analyzed. (See reference 2 for details)

10. Operation and Maintenance (Special Condition S8)

All stormwater treatment and control facilities and laboratories installed or used for compliance with the permit must be properly operated and maintained. Operation and Maintenance procedures for certain BMPs are described in Ecology's stormwater manuals. (See references 4 and 5)

11. Stormwater Pollution Prevention Plan Preparation (Special Condition S9)

The SWPPP must be consistent with permit requirements, fully implemented and updated as necessary to maintain compliance with permit conditions and must be retained onsite or within reasonable access to the site. It must be made available to Ecology upon request. At a minimum the SWPPP must include the following information:

- Facility assessment including description, site map, inventory of materials, and the industrial activities as identified in this document which have been or may be a source(s) of significant amounts of pollutants (Permit Condition S9.B.1.)
- Descriptions of stormwater operational, structural source control, erosion and sediment control, treatment, and peak runoff rate and volume control BMPs that are necessary to comply with all permit requirements (S9.B.3-5.). (See section 3 and checklist on page 3)
- A schedule for implementation of additional BMPs within 30 days of an Ecology notice or a permittee determination of necessary improvements. Implement non-capital BMPs within two weeks and capital BMPs within six months after updating the SWPPP.
- An updated monitoring plan based on inspections or changes in the facility or BMPs.
- Schedule/frequency for completing each maintenance task and a log of employee training which must be conducted at least annually.
- Measures to identify and eliminate illicit discharges (exclusive of authorized non-stormwater discharges in S3.C of the modified permit, when issued) such as industrial/domestic wastewater and cooling water, to surface water or to storm drains, within 30 days.

Note: Blank forms for recording SWPPP information can be obtained by downloading reference 3.

Reference

1. *NPDES and State Waste Discharge General Permit for Stormwater Discharges Associated with Industrial Activities*, WA Department of Ecology, September 20, 2002. At Ecology stormwater web site: http://www.ecy.wa.gov/programs/wq/stormwater/

2. *How To Do Stormwater Sampling*, WA Dept. of Ecology, December 2002. http://www.ecy.wa.gov/programs/wq/stormwater/

3. *Guidance Manual for Preparing/updating aStormwater Pollution Prevention Plan for Industrial Facilities*, WA Dept. of Ecology, 2003. http://www.ecy.wa.gov/programs/wq/stormwater/

4. *Stormwater Management Manual for Western WA*, WA Dept. of Ecology, August 2001. http://www.ecy.wa.gov/programs/wq/stormwater/index.html

5. *Stormwater Management Manual for Eastern WA*, WA Dept. of Ecology, issuance expected in 2004.

6. *Code of Federal Regulations, Protection of the Environment*, Title 40, Part 136, as updated.

7. *Standard Methods for the Examination of Water and Wastewater*, APHA, latest edition.

8. *Guidance Document for Vehicle/Equipment and Steam Cleaning Wash Water Discharges,* WA Dept. of Ecology, September 1994.

9. *Requirements for Generators of Dangerous Wastes,* Ecology, *Chapter 173-303 WAC*, and *Step-by-Step: Fact Sheets for Hazardous Waste Generators*, publication 91-12.

10. *Minimum Functional Standards for Solid Waste Handling*, Ecology, Chapter 173-304, 1988.

11. *Minimum Functional Standards for Containers,* WAC 173-304-200.

12. *Coast Guard Requirements for Marine Transfer of Petroleum Products,* 33 CFR Parts 153, 154 and 155.

13. *USEPA/Ecology Emergency Spill Cleanup Regulations*, SPCC: 40 CFR Part 112 and WAC 173-303-350.

Appendix

Example Sign for Employees

Notice to all Employees

To minimize or prevent stormwater pollution

1. Do not dump any polluting fluid or any other pollutant down any storm drains.
2. Prevent outside spills and leaks of liquids particularly during operation of log stackers and loaders.
3. Keep all paved areas clean of debris that could contaminate stormwater.
4. Use oil containment booms to contain and dry absorbents to immediately clean up spills and leaks of pollutant liquids.
5. Notify management of:
   - Any outside leak, spill, or situation that can cause contamination of stormwater.
   - Ongoing or frequently recurring oil sheen on the surface of a stormwater discharge or in receiving water.
   - Any unsatisfactory stormwater pollution control system operation.

Glossary and Acronyms

AKART: All known, available, and reasonable methods of prevention, control, and treatment: It shall represent the most current methodology that can be reasonable, required for preventing, controlling, or abating the pollutants associated with a stormwater discharge.

APHA: American Public Health Association.

BMP: Best management practices: Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural, and/or managerial practices to prevent or reduce the pollution of waters of Washington State.

CFR: Code of Federal Regulations.

Dike/berm: A containment physical barrier, usually concrete, or earthen with impervious plastic liner for the containment of fluids.

DMR: Discharge monitoring report.

High activity areas: include routine operation of log stackers and loaders, fork lifts and trucks; liquid, log, bark, wood, wood waste and debris storage, handling and access; log truck, stacker and loader access; fueling, washing and maintenance; timber material storage bin and conveyance; and debarkers.

Leachate: Stormwater that has contacted wood waste, bark, chips, ash, and other debris at log yards and solubilizes substances that results in BOD5 and color in the contaminated runoff.

Log Yard: The total land area where logs are stored, transferred, shipped, received, sorted, debarked, or otherwise handled. It includes supporting industrial activities such as: equipment/vehicle use/maintenance/fueling/washing, liquid/solid material storage, material shipping/receiving, and bark/ash/wood debris storage and handling. It also includes all the stormwater drainage areas from these log yard activities.

NPDES: National pollutant discharge elimination system: The national program for issuing, modifying, revoking, terminating, monitoring, and enforcing permits for discharges to surface water.

Oil: Includes gasoline, crude oil, fuel oil, diesel oil, lubricating oil, oily refuse and sludge, liquid natural gas, propane, butane, oils distilled from coal, and other liquid hydrocarbons regardless of specific gravity, or any petroleum related product. (Chapter 90.48 RCW)

Operational BMPs: Schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the contamination of stormwater.

Pollutant: Solid waste, including wood and bark waste, incinerator residue, garbage; oil leaks; filter backwash; sewage; sewage sludge; chemical wastes; biological materials; and industrial, municipal, and agricultural waste; discharged into water, or any other material that can cause pollution of water.

Pollution: Contamination or other alteration of the physical, chemical, or biological properties of waters of the state of Washington; including changes in temperature, taste, color, turbidity, or

odor of the waters; or such discharge of any liquid, solid, gaseous, radioactive or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental, or injurious to the public health, safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life.

Putrescible: Solid waste which contains material capable of being decomposed by micro-organisms.

RCW: Revised Code of Washington

Significant Amount: Amount of pollutant that is amenable to treatment or prevention or that has the potential to cause or contribute to a violation of surface, ground water quality, or sediment management standards. In this permit a significant amount will be defined as exceeding a benchmark value.

Structural Source Control BMPs: Physical, structural, mechanical devices, or facilities that are designed to prevent pollutants from entering stormwater.

Stormwater Runoff: Water originating from rainfall or snowmelt that is found in drainage or conveyance facilities at industrial sites.

SWMM: Stormwater management manual for Western Washington: The technical manual revised by Ecology in August 2001 that contains BMPs to prevent, control, or treat stormwater pollutants. A comparable manual for eastern Washington should be available in early 2004. *(References 4 and 5)*

SWPPP: Stormwater pollution prevention plan: A documented plan to implement measures to identify, prevent, and control the contamination of stormwater and its discharge to ground or surface water.

TMDL Plan: A total maximum daily load plan is a description of the type, amount, and sources of water pollution in a water body with strategies to control the pollution.

Treatment BMPs: Structural BMPs that are intended to remove pollutants from stormwater, such as oil/water separation, biofiltration, and detention/retention basins. Emerging technologies such as media filtration and manufactured storm drain structures can also be considered. (See section 6)

USEPA: U. S. Environmental Protection Agency

WAC: Washington Administrative Code

Water Quality Standards: State of Washington water quality standards for surface waters of the state, which are codified in Chapter 173-201 WAC.

Waters of the State: Waters within the geographic boundaries of the State of Washington, including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters or water courses.